AMENDMENTS TO THE CLAIMS

1. (Currently amended) An ultrasonic imaging method, comprising the steps of:

generating at least one ultrasonic pulse by activating a plurality of transmitting electroacoustic transducers of a predetermined array of transmitting transducers which pulse is directed into a region of a body under examination of a body under examination;

activating said transmitting transducers ~~uniformly~~ in such a manner as to generate a series of unfocused or partly focused scan lines;

receiving at a reference straight or curved line or plane or surface, a time-domain signal, consisting of [[said]] a pulse back-scattered from said region under examination by each of a plurality of receiving transducers of a receiving transducer array [[,]] ~~possibly composed of said transmitting transducers~~ ;

calculating back propagation for said received signal from each of said receiving transducers to at least one straight or curved line or plane or surface through which said signal penetrates said region under examination, which straight or curved line or plane or surface of penetration is at a certain distance from said reference straight or curved line or plane or surface and corresponds to a predetermined penetration depth of said pulse in said region under examination;

processing said signals obtained by said back propagation calculation from each of said receiving transducers to obtain display driving signals; and

providing a limited number of processing channels, which number is smaller than the total number of [[said]] available receiving transducers and is an integral submultiple

of said total number of [[said]] available receiving transducers, whereas for each imaging operation ~~along a whole scan plane or a part thereof~~, a number of transmission steps is provided in which all of said transmitting transducers are activated, which number is at least equal to the inverse of said submultiple of said processing channels, such that a different group of said receiving transducers are connected, to said processing channels for each transmission step with said groups of receiving transducers being composed of as many receiving transducers as said processing channels are in use.

2. (Original) A method as claimed in claim 1, characterized in that the following step is performed before the step of calculating back propagation from said received signal is performed:

transforming said received signals from each of said receiving transducers from a time domain into a frequency domain by a Fourier transform;

where after said step transforming said received signals from said time domain into said frequency domain is performed, the following step is performed;

transforming said back propagated signal, by an inverse Fourier transform, from a frequency domain signal to a time domain signal.

3. (Original) A method as claimed in claim 1, characterized in that each group of receiving transducers may have a single, different receiving transducer of the total number of receiving transducers, the number of transmission steps being equal to the total number of receiving transducers, and a different receiving transducer being connected to a single processing channel corresponding to each of said transmission steps.

4. (Original) A method as claimed in claim 1, providing a number of receiving channels greater than one, a different number of active transmission channels being selected each time, which number is variable from the minimum number of active channels, i.e. one channel, and the maximum number of active channels, i.e. all the receive channels.

5. (Original) A method as claimed in claim 1 providing at least two receiving signal processing channels, which are connected, after each transmission of an ultrasonic beam of a series of ultrasonic beam transmissions, to a corresponding number of different receiving transducers after each of the successive ultrasonic beam transmissions.

6. (Original) A method as claimed in claim 1, characterized in that the individual groups of receiving transducers, including as many receiving transducers as said processing channels in use, are composed of adjacent transducers of said receiving transducer array.

7. (Original) A method as claimed in claim 1, characterized in that the individual groups of receiving transducers, including as many receiving transducers as said processing channels in use, are composed of non-adjacent transducers of said receiving transducer array.

8. (Original) A method as claimed in claim 1, providing the application of variable transmission and/or reception delays to each of said receiving and/or transmitting transducer or group thereof, to correct ultrasonic beam divergences from a homogeneous, unfocused condition, caused by arrangement and/or operation tolerances of said transmitting and/or receiving transducers.

9. (Currently amended) An ultrasonic imaging apparatus comprising:

an array of transmitting electroacoustic transducers;

at least one pulse generator connected to said transducers;

an array of receiving electroacoustic transducers;

processing means connected to said array of receiving transducers and having at least one receiving signal processing channel;

means for providing frequency-transformed receiving signals with reference to one or more different planes of propagation in a region under examination;

means for processing said receiving signals into signals for controlling a display;

said processing means including a number of channels for processing said receiving signals from said receiving transducers, said number of channels being an integral submultiple of the total number of said receiving transducers;

means for activating said transmitting transducers as many times as the inverse of said submultiple; and

switching means which connect, after each transmit activation, said processing channels to a group of said receiving transducers composed of as many receiving

transducers as said processing channels in use, said receiving transducers selected being different after each transmit activation.

10. (Original) An apparatus as claimed in claim 9, further comprising:

means for transforming said receiving signals by a Fourier transform from a time domain to a frequency domain and for transforming said signals back into a time domain by an inverse transform;

means for executing said inverse Fourier transform from said frequency domain into said time domain.

11. (Original) An apparatus as claimed in claim 9, characterized in that each group of receiving transducers may be composed of a single receiving transducer.

12. (Original) An apparatus as claimed in 9, characterized in that said receiving signal processing channels are provided in a smaller number as compared with the total number of said receiving transducers of said transducer array, there being provided means for setting and/or selecting the number of said receiving transducers forming each group of transducers from a minimum number of one receiving transducer to a maximum number of receiving transducers corresponding to the number of processing channels in use.

13. (Original) An apparatus as claimed in claim 9, further comprising means for apply delays to said processing channels in order to compensate for homogeneous

unfocused transmitting and/or receiving beam forming errors caused by construction and/or operation tolerances of said transmitting transducers and/or receiving transducers.

14. (Original) An apparatus as claimed in claim 13, wherein said delay means provides focusing delays to said transmitting transducers.

15. (Original) An apparatus as claimed in claim 13, wherein said delay means provides focusing delays to said receiving transducers.

16. (New) A method as claimed in claim 1, wherein said receiving transducer array includes at least one transmitting transducer.